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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,040	02/03/2004	Frank P. Uckert	UC0210USNA	1544

23906 7590 07/10/2009  
E I DU PONT DE NEMOURS AND COMPANY  
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EXAMINER
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THOMPSON, CAMIE S

ART UNIT	PAPER NUMBER
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1794

NOTIFICATION DATE	DELIVERY MODE
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07/10/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-Legal.PRC@usa.dupont.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/771,040	<b>Applicant(s)</b> UCKERT ET AL.	
	<b>Examiner</b> Camie S. Thompson	<b>Art Unit</b> 1794	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on Amendment filed 6/22/09.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 11-14, 19 and 21-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-14, 19 and 21-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. Applicant's amendment and accompanying remarks filed March 17, 2009 are acknowledged.
2. Examiner acknowledges amended claims 14 and 19.
3. The rejection of claims 11-12, 14, 19 and 21-24 under 35 U.S.C. 112, second paragraph is overcome by applicant's amendment.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 14 and 21-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Adaway et al., U.S. Patent Number 7,102,042.

Adaway discloses a method for preparing fluorene monomers comprising reacting fluorene in the presence of an alkylating agent such as an alkali metal hydride and a halogenated alkyl (see abstract and column 1, lines 49-68). It is disclosed in column 3 that a variety of alkyl halides may be used as alkylating agents. The Adaway reference also discloses that a phase transfer catalyst such as tetra alkyl ammonium may be used (see column 2, lines 48-

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68). The phase transfer catalysts of the Adaway reference are capable of adding substituents to the monomers. Adaway discloses that the alkylhalide may be primary, benzylic or allylic. Additionally, Adaway also discloses that the mole ratio of alkyl halide to fluorene is 2:1 or greater. Adaway discloses that the dialkylation at the 9 positions advantageously increases solubility. Adaway does disclose in the background that fluorene monomers are useful for numerous polymers including polymeric light emitting diodes (see column 1, lines 5-15).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 11, 12, 19 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adaway et al., U.S. Patent Number 7,102,042 in view of Rietz et al., U.S. Patent Number 6,132,641.

Adaway discloses a method for preparing fluorene monomers comprising reacting fluorene in the presence of an alkylating agent such as an alkali metal hydroxide and a halogenated alkyl (see abstract and column 1, lines 49-68). Adaway does not specifically disclose that the fluorene monomers in a light emitting diode. Adaway does disclose in the background that fluorene monomers are useful for numerous polymers including polymeric light emitting diodes (see column 1, lines 5-15). Rietz discloses polymers processed from fluorene monomers used in light emitting diodes (see column 2, lines 58-60). Both Adaway and Rietz disclose that

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the fluorene monomers have excellent thermal stabilities and fluoresce which can be incorporated into electroluminescent displays. Therefore, it would have been obvious to one of ordinary skill in the art to have the polymers from the Adaway reference used in a light emitting diode since fluorene monomers and polymers provide fluorescent emission and have excellent thermal stability. Neither Adaway nor Rietz discloses the molar ratio of the monomeric units having the first substituent to monomeric units having the second substituent is in the range of 100:1 to 1:100. However, this is an optimizable feature. The differing substituents on the fluorene monomers affect the luminescence and stability of the monomer. Therefore, it would have been obvious to one of ordinary skill in the art to have the molar ratio of the monomeric units having the first substituent to monomeric units having the second substituent is in the range of 100:1 to 1:100 in order to have a light emitting diode that has higher luminescence due to the higher luminescence provided by a polymer that is comprised of fluorene monomers with high luminescent yield.

### ***Response to Arguments***

8. Applicant's arguments filed March 17, 2009 have been fully considered but they are not persuasive. Applicant argues that the Adaway does not teach or suggest treating the monomers with at least two reagents capable of adding substituents. Adaway discloses treating the monomers with an alkyl halide (alkylating agents) and a phase transfer catalyst (tetra alkylammonium). Adaway discloses two reagents as required by the present claims. Applicant argues that the combination of Adaway and Rietz fails to teach or suggest the components of the present claims. Adaway discloses a method for forming a polymer by providing a plurality of

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aromatic monomers and treating the monomers with at least two reagents capable of adding substituents to the monomers. Adaway does disclose that the polymer can be used in a light emitting diode. Rietz was brought in to show that the monomers have excellent thermal stabilities and can be used in an active layer of a light emitting diode. The Adaway reference reads on the independent claim 14 with two reagents (alkyl halide and tetraalkylammonium [phase transfer catalyst]) capable of adding substituents to the monomers. The rejections are maintained.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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***Conclusion***

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Camie S. Thompson whose telephone number is (571) 272-1530. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, D. Lawrence Tarazano, can be reached at (571) 272-1515. The fax phone number for the Group is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or would like to access the automated information system, call (800) 786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. Lawrence Tarazano/

Supervisory Patent Examiner, Art Unit 1794